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Animal Production Science

Supplementary Material

Skim-Nanopore sequencing for routine genomic evaluation and bacterial pathogen detection in cattle

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Supplemental Table S1: Pathogens tested for using the quantitative real-time PCR

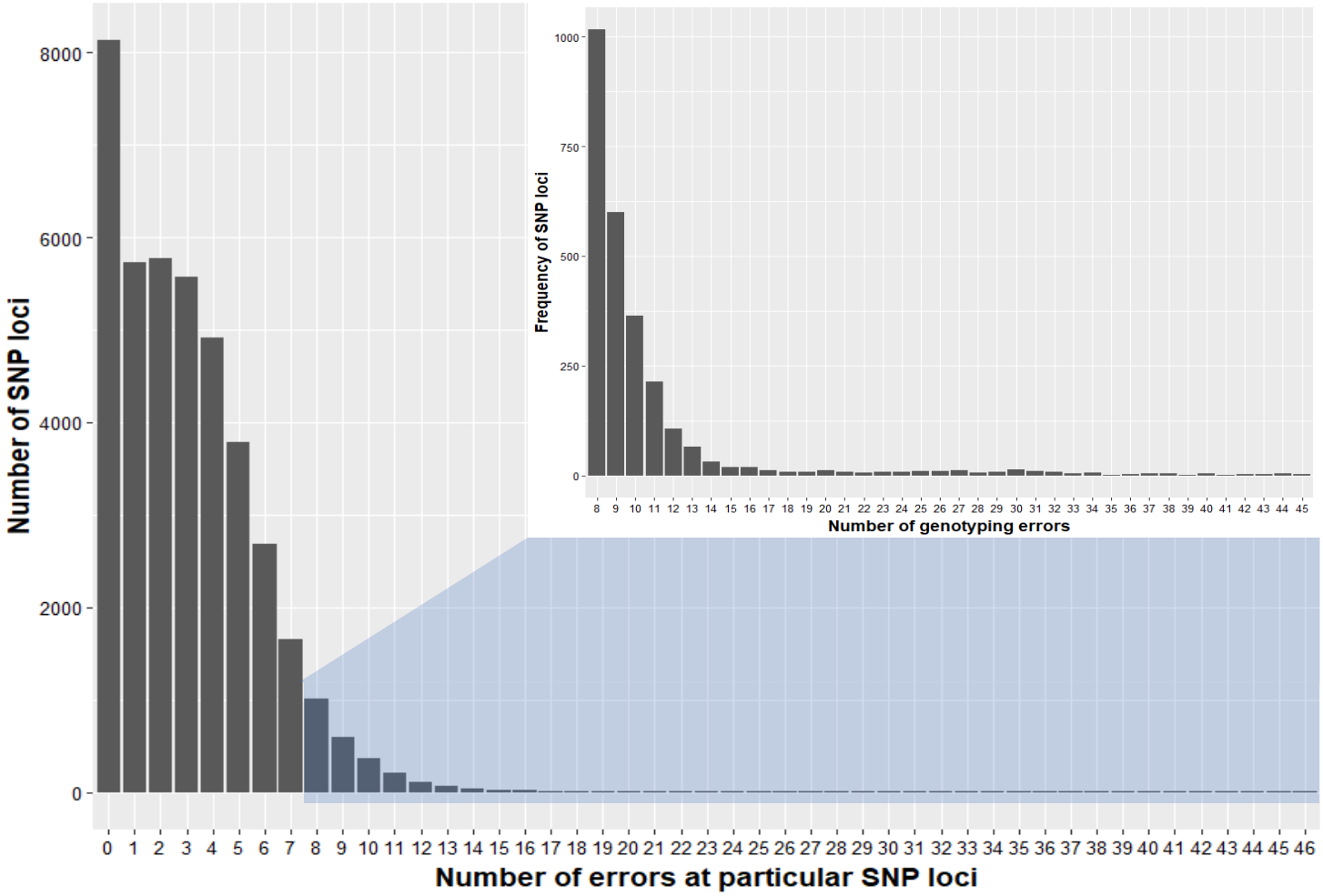
Pathogen Name
Bovine Herpes virus (DNA)
Mycosplasma bovis
Histophilus Somni
Pasteurella multocida
Manheimia haemolytica

Supplemental Table S2: Bovine respiratory disease pathogens of interest

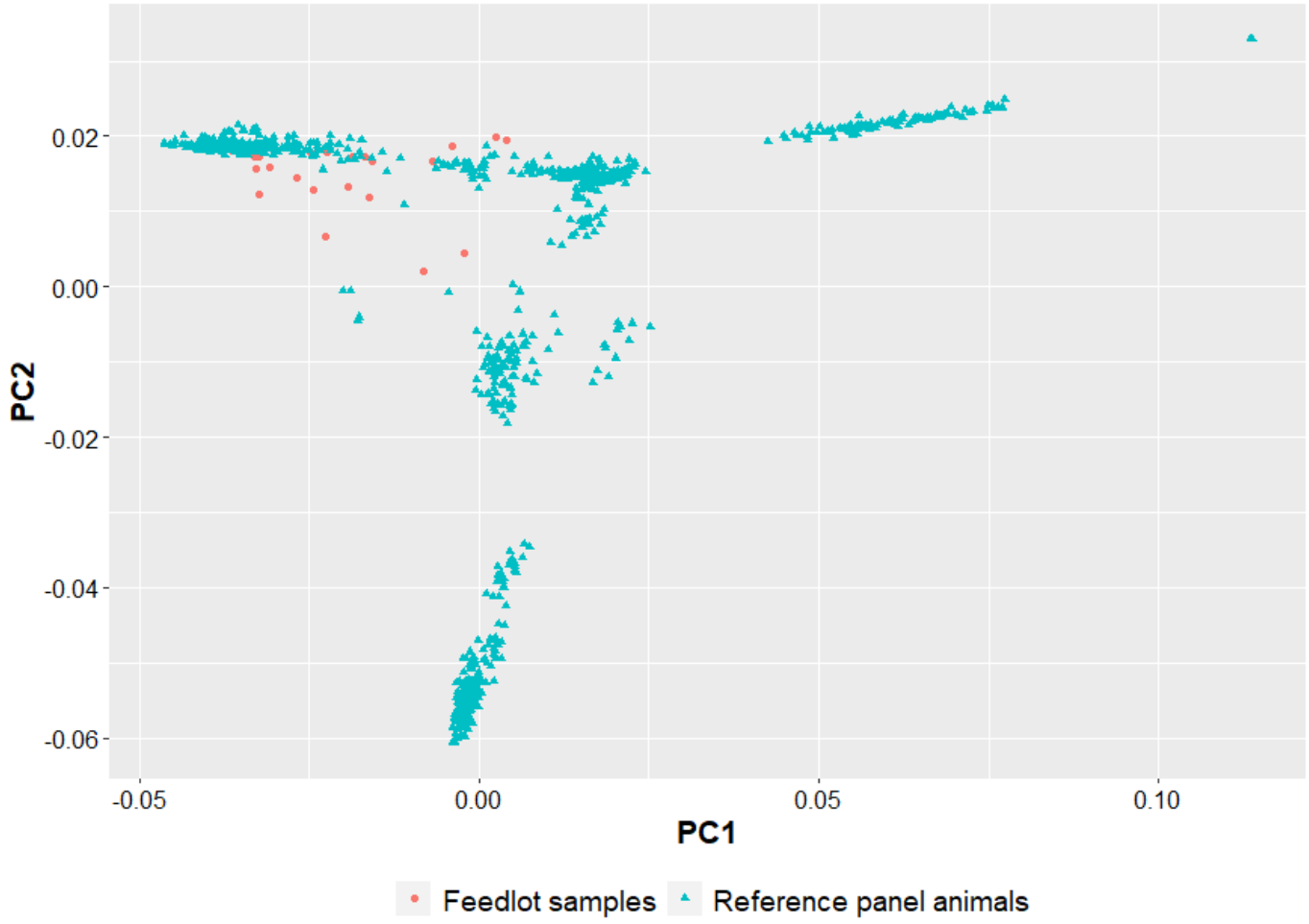
BRD associated pathogens
Bovine Herpes virus (DNA)
Mycosplasma spp.
Histophilus somni
Pasteurella multocida
Bibersteinia trehalosi
Mannheimia spp.
Moraxella spp.
Ungulate parvo virus

Supplemental Table S3: The amplification primer and dual labelled hydrolysis probe sequences used in the quantitative real-time PCR assays used to detect bovine respiratory disease associated pathogens this study.

Target Species	Primer/Probe Designation	Primer/Probe Sequence (5' – 3')
Bovine alphaherpesvirus 1	BHVfwd	ATGTTAGCGCTCTGGAACC
	BHVrev	CTTTACGGTCGACGACTCC
	BHVprobe	Cy5-ACGGACGTGCGCGAAAAGA-BHQ2
Mannheimia haemolytica	Mhfwd	AAGGCGATGATATTCTCGATGGT
	Mhrev	TACCATCGCCTTTACGGTGAA
	Mhprobe	VIC-TATCGATGGCGGTAAAGGCAACGACCTA-BHQ1
Pasteurella multocida	Pmfwd	CGCAGGCAATGAATTCTCTTC
	Pmrev	GGCGCTCTTCAGCTGTTTTT
	PmProbe	Cy5-ACTGCACCAACAAATGCTTGCTGAGTTAGC-BHQ2
Histophilus somni	Hsfwd	AGGAAGGCGATTAGTTTAAGAGATTAATT
	Hsrev	TCACACCTCACTTAAGTCACCACCT
	Hsprobe	ROX-ATTGACGATAATCACAGAAGAAGCACCGGC-BHQ2
Mycoplasma bovis	MycoFWD	TGGGATAGCGGATGGAAACA
	MycoREV	GCTTCCTTTTATATTACTTTCATGCAAC
	mycoProbe(MGB)	FAM-CCGATAATACCGAATACT-BHQ1



Supplemental Figure S1: Frequency distribution of the number of loci in the 40,878 overlapping SNP loci with 1 or more errors at that locus in the 48 samples. The inset shows the distribution of the systematic errors, i.e., having 8 or more errors at the loci out of the 48 animals.



Supplemental Figure S2: Principal component analysis plot of the 48 sequenced feedlot samples and 1,205 animals in the reference panel used for genotyping and imputation.